Abstract of the Disclosure

Imaging arrays are electronic devices that sense light and output electrical signals representative of the sensed light. An imaging array comprises thousands or millions of photodetectors that convert sensed light into corresponding electric signals, which are ultimately converted into digital image signals for recording or viewing. One problem with conventional imaging arrays concerns defective or malfunctioning photodetectors. Defective photodetectors typically result in erroneous image signals that ultimately degrade the quality of resulting images. Accordingly, the present inventors devised new imaging arrays including redundant photodetectors to compensate for defective photodetectors. One exemplary embodiment includes one or more photodetectors that are substantially smaller than conventional photodetectors, for example about 10 or 25 square microns. The smaller-than-conventional photodetectors are arranged into two or more groups, with each group having two or more photodetectors coupled to produce a single group image signal. If the group image signal for a group falls below some threshold level indicative of a defective or malfunctioning photodetector, the group image signal is amplified to compensate for the loss.